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Report of the Secretary-General

Summary

With enough food produced in the world, more than 850 million people still suffer from chronic hunger. Despite a decline in rural poverty over the past 10 years, still there are an estimated 883 million rural poor, the vast majority of whom depend on agriculture for their survival and livelihoods. With global population projected to grow to 9 billion people by 2050, mostly in the developing world, food production will have to expand, perhaps even double, to meet growing world demand.

At the same time, new uncertainties and factors such as climate change, high energy prices and resource scarcities, along with globalization, urbanization and changing consumption and market trends, including the new surge in world agricultural prices, increase the challenges faced by agriculture. In all these efforts, the role of farmers and other rural stakeholders is critical.

It is therefore timely that attention is turning again to the role of agriculture as a crucial sector in national, regional and international efforts to reduce hunger and poverty, to improve rural livelihoods and to achieve sustainable development.

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I. Introduction

1. The present report provides a brief review of the state of implementation of the goals and targets related to agriculture agreed upon in Agenda 21, the Programme for the Further Implementation of Agenda 21, the Johannesburg Plan of Implementation of the World Summit on Sustainable Development, and relevant decisions of previous sessions of the Commission on Sustainable Development. It also highlights constraints and obstacles that countries have encountered in the implementation of these goals and targets, and reflects continuing challenges in the implementation process. In accordance with the mandate of the Commission on Sustainable Development at its eleventh session, progress in the thematic cluster of agriculture is also seen with respect to the cross-cutting issues identified by the Commission. This report should be read in conjunction with the separate reports of the Secretary-General on rural development, land, drought, desertification and Africa, as well as the report on trends in sustainable development, which are also before the Commission at its current session.

2. The report draws on substantive contributions from the Food and Agriculture Organization of the United Nations (FAO), which is the lead agency in the United Nations system for agricultural issues. The Secretariat also benefited, in particular, from the World Bank's *World Development Report, 2008: Agriculture for Development*, as well as country and national assessments submitted by Governments and inputs from stakeholders and major groups. Regional assessments prepared by the United Nations regional commissions have also been reflected.

II. Review of implementation

3. Fifteen years ago, chapter 14 of Agenda 21, which was adopted by the United Nations Conference on Environment and Development, noted that agriculture had to meet the challenge of feeding the growing number of hungry people, mainly by increasing production on land already in use and by avoiding further encroachment on land that is only marginally suitable for cultivation. Five years later, at the Earth Summit + 5, Governments called for sustainable food security, meaning adequate food availability, access and use, for both the urban and rural poor to be a policy priority. The third and eighth sessions of the Commission on Sustainable Development, in 1995 and 2000, respectively, focused on agriculture, rural development and land, and determined that agriculture must increase food production in a sustainable way and enhance food security in an environmentally sound way so as to contribute to sustainable natural resource management. The Johannesburg Plan of Implementation adopted by the World Summit on Sustainable Development in 2002 reaffirmed all these objectives and called for the implementation of the World Food Summit and Millennium Declaration goals to halve global hunger and poverty by 2015.[1] But, midway to this target year, although food security is a policy priority for all countries, it remains an unfulfilled goal. While there is generally enough food in the world to feed everyone, chronic hunger persists and future global food security faces the uncertainties of growing resource scarcities and climate change.

[1] Agenda 21 (para 14.1), Rio+5 (para. 63); CSD-8, dec. 8/4, para. 2 ...; JPOI, para. 40; FAO, *Report of the World Food Summit (13-17 November 1996)*, Rome, 1997.

A. Hunger, poverty and food security

4. Despite continuing progress in global agricultural production (including fisheries and forestry), and lower-than-projected population growth rates, an estimated 854 million people in the world still suffer from chronic hunger. Of these, 820 million live in developing countries, 25 million live in transition countries and 9 million are in the developed countries. After a slight decline in the number of hungry people in the 1990s, the figure has been increasing since the beginning of this decade, making achievement of the World Food Summit target of reducing by half the number of undernourished people by 2015 increasingly unlikely.[2]

5. Because of population growth, the very small net decrease in the number of undernourished people since the 1990-1992 baseline period has resulted in a reduction in the proportion of the hungry in developing countries by 3 percentage points — from 20 per cent in 1990-1992 to 17 per cent in 2002-2004 (the latest global estimates from FAO). This means that progress has been made towards meeting the target of the first Millennium Development Goal of halving the percentage of hungry people by 2015. However, progress over this period was slower than over the previous two decades, when the prevalence of undernourishment declined by 9 percentage points (from 37 to 28 per cent) between 1969-1971 and 1979-1981 and by a further 8 percentage points (to 20 per cent) between 1979-1981 and 1990-1992.

6. Global stagnation in hunger reduction masks significant disparities among regions: Asia and the Pacific and Latin America and the Caribbean have seen an overall reduction in both the number and prevalence of undernourished people since 1990-1992. Nevertheless, in both regions, the average rate of reduction has fallen short of what would be required to halve the undernourished population by 2015. While economic growth in East Asia, especially China, has helped reduce the incidence of undernourishment in this region by an average of 2.5 per cent a year, South Asia contains the largest number of hungry people, accounting for 36 per cent of all undernourished people in the developing world. In the Near East, North Africa and in sub-Saharan Africa, the number of undernourished people has risen over the same 1990-1992 to 2002-2004 period. In sub-Saharan Africa, this represents the continuation of a trend that has been apparent over the last three decades at least. In Central Africa, there has been a dramatic increase in both the number and prevalence of undernourishment.[3]

7. As often noted, the problems of hunger and poverty are inextricably linked and one cannot be solved without tackling the other. Hunger is not only a consequence but also a cause of poverty. Yet past trends and projections suggest that poverty reduction does not necessarily lessen undernourishment, especially for the most vulnerable, as chronic hunger itself acts as a barrier to escaping poverty, the so-called "hunger trap".

8. Nevertheless, agriculture does have a proven comparative advantage over other sectors in reducing poverty. Farmers engage in agriculture both as a means to feed themselves and their families and to earn a living by selling its products. Agricultural growth is the main contributor to food security as well as to poverty

[2] FAO, The State of Food and Agriculture (SOFA), 2007. Rome, 2007.

[3] Ibid., pp. 130-133, Figures 26-27; FAO, The State of Food Insecurity in the World, Rome, 2006; and World Bank, World Development Indicators, 2007.

reduction and overall development, especially in the developing countries. But, after 50 years of nearly continuous growth in world agricultural production, this success still eludes many countries, especially the least developed countries, particularly in recent years, and environmental costs have often been high, threatening the sustainability of future production. As pointed out in the World Bank's *World Development Report 2008*, the irony is that most of the food insecure live in rural areas where food is produced, yet they are net food buyers rather than sellers. Poverty constrains their access to food in the marketplace.[4]

9. An overriding consideration affecting agricultural development is the fact that women are the main producers of the world's staple crops (rice, wheat and maize). According to FAO, rural women are responsible for half of the world's food production and produce between 60-80 per cent of the food in most developing countries. In Africa, in particular, as men's participation in agriculture has declined as a result of war, sickness and death from HIV/AIDS and other diseases, and rural-urban migration of men in search of paid employment, the role of women in agriculture has become increasingly dominant, a phenomenon termed the "feminization of agriculture". The fact that women tend to have less access to agricultural inputs and services, land, tools and technology, rural credit, farmers' extension training and participation in decision-making limits the opportunities for overall growth in the agricultural sector.

B. Agricultural production and consumption

1. Sectoral trends and forecasts

10. Globally, total agricultural production has met the world's growing demand for food (including crops and livestock products). The total gross domestic product (GDP) of agriculture expanded from 1980 to 2005 by an average of 2.0 per cent a year, which is above the population growth rate of 1.6 per cent annually. Production per capita has consequently trended upward, especially since the mid-1990s. Much of this production growth has been in developing countries.

11. Production and demand for individual agricultural commodities has fluctuated over time and growth has not always been uniform. According to FAO data, world cereal production, after several years of stagnation, increased sharply in the 2004-2005 crop year, but declined in 2006-2007, largely due to unfavourable weather conditions in some major producing countries. World cereal production in 2007 is estimated to have increased by 4.6 per cent over the previous year and early prospects for 2008 indicate a larger gain, as a result of expanded winter grain plantings in Europe and the United States. While drought and flooding in different parts of the world limited growth prospects for rice and wheat in 2007, production and consumption of coarse grains, especially maize and sorghum, are forecast to have grown substantially because of the demand for animal feed as well as for the manufacture of ethanol. The production of high-value agricultural commodities such

[4] World Bank, *World Development Report, 2008: Agriculture for Development* (Washington, D.C., 2007).

as vegetables, fruits, meat, milk and flowers is growing at a substantially higher rate in developing countries than in developed countries.[5]

12. Livestock production currently accounts for some 40 per cent of the gross value of world agricultural production, and its share is rising. This sector is the world's largest user of agricultural land, directly as pasture and indirectly through the production of fodder crops and other feedstuffs. The rate of growth of global livestock production has slowed in recent years, however, and is below the averages of the last four decades. The slowing rate of growth in livestock output has been caused by rising feed costs and various animal disease outbreaks, including avian influenza and pig and bovine diseases, causing consumer fears, trade bans and price declines. Demand for livestock products in developing countries has continued to grow along with rising incomes, bolstering the global market. In developed countries, the scope for increased demand for meat is limited, as meat consumption is already very high and health and food safety concerns, focused on animal fats and the incidence of new animal diseases, have emerged. Moreover, the impact of livestock production on the environment is a continuing concern in many countries, where it contributes to deforestation and can cause soil erosion, desertification and the loss of plant biodiversity.[6]

13. Aquaculture — or fish farming — has been the world's fastest-growing food production sector for the past 25 years, averaging an annual growth rate of 8.8 per cent since 1970. Reaching 50 million tons in 2006, aquaculture currently accounts for about 45 per cent of all fish consumed by humans, and it is expected to overtake capture fisheries as the main source of food fish supply in the near future. Seventy-nine per cent of world production of fish and fishery products (capture and aquaculture) takes place in developing countries and half of global fish exports of $86 billion in 2006 originated in developing countries. As an important source of protein, fatty acids, vitamins and minerals, fish consumption helps reduce hunger and malnutrition. Fish farming improves food security by creating jobs and raising incomes. It is estimated that in Asia, fish farming directly employs some 12 million people. Africa has lagged behind in the fish boom, however, as it is the only region where per capita fish consumption has fallen and whose share of global aquaculture production is less than 1 per cent. FAO has projected that by 2030 an additional 37 million tons of fish per year will be needed to maintain current levels of fish consumption for an expanding world population. Because traditional capture fisheries have reached their maximum production levels, fish farming remains the only way to fill this "fish gap".[7]

2. Changing patterns of consumption

14. Diets in developing countries, in particular, are changing as incomes rise. The share of staples, such as cereals, roots and tubers, is declining, while that of meat, dairy products and oilseeds is rising. Cereals are still by far the world's most important sources of food, both for direct human consumption and indirectly, as inputs to livestock production. But meat and dairy products are expected to provide

[5] FAO, SOFA, 2007, pp. 120-124; and FAO, Food Outlook-Global Market Analysis, November 2007; 2008 forecasts from: FAO, "Crop Prospects and Food Situation", No. 1, February 2008.

[6] FAO, SOFA, 2007; and FAO, Food Outlook-Global Market Analysis, November 2007.

[7] FAO, "The Role of Aquaculture in Sustainable Development", Special Event at the FAO Conference, Rome, 17-24 November 2007.

an increasing share of the human diet. Demand for higher-value commodities, such as fresh fruits and vegetables, horticulture and organic crops, is rising in developed and transition countries and in the developing countries with fast-growing economies.

15. Organic agriculture, which eliminates the use of any chemical inputs such as fertilizers, is practiced on about 2 per cent of the world's farmlands, or nearly 31 million hectares. It is a high-value industry, generating sales of $24 billion in Europe, North America and Asia in 2006, though its potential for expansion in less-developed areas is limited by the need for extensive investment in capacity-building, marketing and high quality control. Experts conclude that, while providing wholesome, nutritious food and a growing source of income for both developed and many developing countries, organic agriculture alone cannot feed the hungry today or in the future.[8]

16. Half the world's population now live in cities, raising the demand in urban areas for all kinds of food, including fresh fruits and vegetables. "Urban agriculture" has developed as individual households garden on small plots, roadsides, terraces and patios, both to feed their families and also to sell through street vendors. By providing fruits and vegetables, urban farmers also contribute to improved nutrition. However, in some cases, the uncontrolled uses of agro-chemicals and doubtful irrigation water have caused public health problems.

3. Tighter supplies and rising prices

17. An analysis of the data for the past 40 years up through the beginning of this decade shows that per capita food consumption has steadily increased, particularly in developing countries (though less so for sub-Saharan Africa), while food prices have declined. The real prices of rice, wheat and maize, the world's major cereal staples, fell by around 60 per cent between 1960 and 2000. But more recently, as a result of poor harvests in key producing countries in 2006-2007 and a fast-growing demand for grains and other crops used for biofuels, world agricultural prices have risen sharply for nearly all major food and feed commodities. This price boom, led by wheat and maize but encompassing almost all other commodities, has been accompanied by much higher market volatility than in the past. In December 2007, FAO reported that cereal prices had reached levels not seen for a decade. Nevertheless, the effect of currency exchange rate swings, in particular the depreciation of the US dollar against all major currencies, has lessened the full impact of rising agricultural prices and kept import demand up.[9]

18. A report prepared by the International Food Policy Research Institute in December 2007 for the annual meeting of the Consultative Group on International Agricultural Research found that rising food prices are, in fact, threatening the livelihoods and nutrition of the poor. The report concludes that surging demand for feed, food and fuel have recently led to drastic price increases, which are not likely to fall in the foreseeable future, due to low stocks and slow-growing supplies of agricultural outputs.[10] While farmers around the world are sharing in some of the

[8] FAO, SOFA, 2007 and World Bank, WDR, 2008 (2007).

[9] FAO, SOFA, 2007, p. 124: Food Outlook-Global Market Analysis, Rome, November 2007; FAO, Food Outlook, Rome, December 2007.

[10] International Food Policy Research Institute, "The World Food Situation: New Driving Forces and Required Actions", report for CGIAR Annual General Meeting, Beijing, 4 December 2007.

benefits of higher prices for their crops, overall the higher retail prices of basic items, a phenomenon called "food inflation", can be said to have the most negative impact on the poorest consumers, who are net food buyers. Reports emerged in late 2007 of protests and civil unrest in a number of countries in Africa and Latin America over surging prices of food staples such as bread, pasta and tortillas, while stocks of rice, which feeds half the world's population, fell to their lowest level since the mid-1970s. Rising prices and reduced stocks, along with higher transport and energy costs, are also reflected in the fact that global food aid deliveries in 2006 fell to their lowest level in over 30 years. The World Food Programme has noted that because of high world prices for grains and transportation, its overall cost to feed a hungry person has gone up 50 per cent in the last five years.[11]

4. Climate change and agriculture

19. Agricultural production could be particularly affected by global warming and climate change. Some analysts project that world agricultural GDP will decrease by 16 per cent by 2020 due to global warming, with the most severe effects in developing countries.[12] The Intergovernmental Panel on Climate Change concluded in its Working Group II report on Impacts, Adaptation and Vulnerability (April 2007) that in many African countries and regions, agricultural production, including access to food, is projected to be severely compromised by climate variability and change.[13]

20. The projected rise in average global temperature over the next 50 years could have serious implications for rainfall and the frequency and intensity of extreme weather events.[14] Countries suffering from food insecurity and fragile environments are particularly vulnerable due to implications for food production, including effects on crops, pastures, forests and livestock, shifting climatic zones, impacts on soils, loss of habitats of harvested and wild species used for food and livelihoods, as well as increased incidence and risks of pests and vector-borne diseases. These countries are also most lacking in capacity to invest in research or infrastructure to mitigate climate change effects or compensate through greater food imports.[15] The triple threat of climate change, rising food prices and population growth impacts most negatively on Africa's rural poor.

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[11] Reported in International Food and Information System, Food Aid Flows, June 2007. A new and positive development has been the increase in food aid originating in developing countries themselves, which rose (albeit from a low level) by 40 per cent in 2006 as a result of high prices and transport costs from traditional donors. WFP, Food Aid Flows, 2006 (Rome, 2007).

[12] Cline, W. R., Global Warming and Agriculture: Impact estimates by country. Washington, D.C., Center for Global Development and Peterson Institute for International Economics, 2007.

[13] IPCC, Climate Change 2007: Impacts, Adaptation and Vulnerability. Summary for Policymakers approved at the eighth Session of Working Group II of the IPCC, Brussels, April 2007. The Final Synthesis Report of the IPCC's 4th Assessment Report is available at: http://www.ipcc.ch/ipccreports/ar4-syr.htm.

[14] Stern, Nicholas, *Stern Review: Economics of Climate Change*, London, United Kingdom Treasury, 2006.

[15] See http://www.iiasa.ac.at/Research/LUC/SAEZ/index.html for further details of a joint FAO and International Institute for Applied Systems Analysis (IIASA) study of a global agro-ecological assessment for agriculture in the 21st century. Also see a subsequent report by IIASA called "Climate change and agricultural vulnerability" is at: http://www.iiasa.ac.at/Research/LUC/JB-Report.pdf.

5. Future prospects

21. Data indicate that the rate of growth in world demand for agricultural products has slowed, because population growth rates have declined and fairly high levels of food consumption have been reached in many countries. Overall, growth in demand is expected to slow still further in the future.[16] However, the poorest developing countries will become more dependent on agricultural imports, and food security in many poor areas will not improve without substantial increases in local production.

22. Globally, producers have satisfied effective market demand in the past for those with the ability to pay. But effective demand does not represent the total need for food and other agricultural products, because hundreds of millions of people lack the money to buy what they need or the resources to produce it themselves. Thus, even if there is sufficient potential for production in the world as a whole, there will still be problems of food security at the household or national level. In urban areas, food insecurity usually reflects low incomes, but in poor rural areas it is often inseparable from problems affecting food production. In many areas of the developing world, the majority of people still depend on local agriculture for food and/or livelihoods but the potential of local resources to support further increases in production is very limited, at least under existing technological conditions.

C. Integrated planning of sustainable agriculture

1. Arable land, soil productivity and crop yields

23. Approximately 11 per cent (1.5 billion hectares) of the Earth's land surface is currently used in crop production (arable land and land under permanent crops, 2003-2005 average). This area represents slightly over one third of the land estimated to be to some degree suitable for growing crops. There are large tracts of land (about 2.7 billion hectares) with varying degrees of agricultural potential in several countries, most of them in sub-Saharan Africa and Latin America, but most of this land lacks infrastructure, or needs to be protected for forest cover and environmental reasons or lacks access to appropriate agricultural and technological inputs.

24. There are three main sources of growth in crop production: expanding the land area, increasing the frequency with which it is cropped (often through irrigation), and boosting yields. Studies show that about 80 per cent of the projected growth in crop production in developing countries will come from intensification in the form either of yield increases (67 per cent) or higher cropping intensities (12 per cent). The share due to intensification is forecast to rise to 90 per cent and higher in the land-scarce regions of the Near East, North Africa and South Asia. In these regions, intensification through improved management and technologies will be the main, indeed virtually the only, source of production growth. Elsewhere, arable land expansion will remain an important factor in crop production growth in many countries of sub-Saharan Africa and Latin America.

[16] World Bank, *WDR, 2008*, based on: Rosegrant, Mark W., et al., "Future Scenarios for Agriculture: Plausible Futures to 2030 and Key Trends in Agricultural Growth", 2006, Background paper for *WDR 2008*.

25. The enhancement and rehabilitation of land resources to achieve sustainable agriculture and the remediation of productivity decline requires a multi-faceted, integrated approach. One such approach is a concept of improved practices called "conservation agriculture", based on the three principles of minimal soil disturbance, permanent soil cover and crop rotation.[17]

2. Fertilizer consumption and energy use

26. The improvement and maintenance of soil fertility is a prerequisite for achieving sustained increases in crop yields. Without adequate levels of soil fertility, crops cannot respond to other inputs such as new seeds and management practices. Most soils must receive sufficient levels of nutrients as organic or inorganic (mineral) fertilizers. A third of the increase in world cereal production in the 1970s and 1980s has been attributed to increased fertilizer use. In India, this figure rises to half. The level of fertilizer use varies enormously from region to region. North America, Western Europe and East and South Asia accounted for over three quarters of world fertilizer consumption in 2007-2008, while fertilizer use in Africa amounted to only 3.4 per cent of the global total.[18]

27. World fertilizer consumption grew rapidly from the 1960s to the 1980s, but slowed considerably in the 1990s. The slowdown in industrial countries was mainly due to reduced Government support for agriculture and increased concern over the environmental impact of inorganic fertilizer. In transition countries, fertilizer consumption also fell rapidly, but for different reasons, namely recession and restructuring. Even in developing countries, the growth rate of fertilizer use in the 1990s was less than half of that in earlier decades.

28. Small shareholders may not now be able to afford fertilizers, as the price has been driven up by rising energy costs and the depletion of phosphate stocks.[19] Although the excessive use of fertilizers and other chemical inputs has for years led to environmental and health concerns, low fertilizer use in sub-Saharan Africa is seen by some analysts as one of the major constraints which has limited its agricultural productivity. On the other hand, some researchers have concluded that, under certain conditions, compost from household and farm waste in some parts of Africa has been more effective in raising smallholder farmers' crop yields than chemical fertilizers.[20] On balance, it appears that an integrated approach to farming, combining improved seeds, the judicious use of fertilizers, plant and soil protection measures and good management practices, is required to produce enough food to feed the growing world population.

29. A recent successful case study that has received widespread attention is the experience of the Government of Malawi which, contrary to the advice of donors and international financial organizations, decided in 2006 to heavily subsidize fertilizer and, to a lesser extent, seed, for its farmers. Luckily timed to the onset of

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[17] Data in this section from FAO, *SOFA, 2007*, table A2. For more information on "Conservation Agriculture", including case studies and best practices, see: http://www.fao.org/ag/ca.

[18] FAO, Current World Fertilizer Trends and Outlook to 2011-2012 (Rome, FAO, February 2008).

[19] UNEP, *Global Environment Outlook (GEO 4)*, 2007.

[20] The pro-fertilizer view is from: World Bank, *WDR 2008*. The argument for organic soil supplements is by Egziabher, Tewolde Berhan Gebre, "Potential of the African Environment for the Intensification of Agricultural Production" in: Aksel Naerstad, ed., *Africa Can Feed Itself* (Oslo, The Development Fund), 2007.

good rains (after several years of drought), corn yields in Malawi more than doubled between 2005-2006 and increased again in 2007. Once a country on the brink of famine, Malawi is now not only feeding itself but also selling corn to the World Food Programme and exporting hundreds of thousands of tons of corn to neighbouring countries in Africa.[21]

30. Biofuels (e.g., ethanol derived from sugar and maize and biodiesel from rapeseed, soybean, palm oil and other crops) have rapidly emerged onto the international agenda and are having significant effects in many countries. Some national Governments, both in developing and developed countries, have already launched biofuel development projects and are actively supporting them with tax exemptions, subsidies and consumption mandates. About 90 per cent of global ethanol production of 40 billion litres in 2006 took place in Brazil (where production began in the 1930s) and the United States, while France and Germany are major producers of biodiesel. Estimates forecast the share of biofuels in global transport energy production increasing from just over 1 per cent today to some 4-7 per cent (depending on policy scenarios) in 2030.[22] While the industry's potential as a source of income and new markets for farmers, including rural and small-scale farmers, is of great interest, there is also concern over biofuel's possible impact on food security, sustainable agriculture and rural development. Competition and trade-offs for arable land, water and other inputs used for food production, upward pressure on food prices and other socio-economic and environmental costs are among the issues to be assessed.

3. Water and agriculture

31. Agriculture is by far the largest user of global water supplies — accounting for at least 70 per cent of the total. This share will probably increase significantly, given growing water scarcity, which already affects every continent and more than 40 per cent of the people on our planet. By 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity, and two thirds of the world's population could be living under water-stressed conditions. The water scarcity situation is exacerbated by climate change, especially in the driest areas of the world. Agriculture, and particularly irrigation, will become more vulnerable to these changes. It is estimated that 80 per cent of the world's food crises are linked to water and especially to drought.[23]

32. Irrigation is crucial to the world's food supplies. In 1997-1999, irrigated land made up only about one fifth of the total arable area in developing countries but produced two fifths of all crops and close to three fifths of cereals. FAO estimates that there appears to be enough unused irrigable land to meet future needs. Studies suggest a total irrigation potential of some 402 million hectares in developing countries, of which only half are currently in use. However, water resources will be a major factor constraining expansion in South Asia, which will be using 41 per cent

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[21] Keynote Address by H.E. Bingu Wa Mutharika, President of Malawi, to the High-Level Special Event on "Aid for trade and Food Security", FAO, Rome, 21 November 2007. See also "Ending Famine, Simply by Ignoring the Experts" by Celia W. Dugger in *The New York Times*, 2 December 2007.

[22] International Energy Agency (IEA), *World Energy Outlook* 2006, Paris, 2006.

[23] Input from FAO for CSD-16; also: UNEP, GEO-4, p. 121; Rosegrant, Mark et al., *World Water and Food to 2025: Dealing with Scarcity* (Washington, D.C., IFPRI, 2002); and OECD, *Water and Agriculture: Sustainability, Markets and Policies* (Paris, OECD, 2006).

of its renewable freshwater resources by 2030, and in the Near East and North Africa, which will be using 58 per cent.

33. Today only 7 per cent of Africa's arable land area is irrigated and this figure is 4 per cent in sub-Saharan Africa. As a result, sub-Saharan Africa uses less than 3 per cent of its water resources. Given that one third of the population of sub-Saharan Africa is undernourished and that its current population of 700 million is expected to reach 1.2 billion in 2030, the opportunities for improving the livelihoods and food security of rural communities through better water management are evident.

4. Plant and animal genetic resources

34. Plant genetic resources for food and agriculture are essential to sustainable agriculture and food security. Humans have used some 10,000 plant species for food throughout history. However, now only 20 crops provide 90 per cent of dietary energy or protein. Wheat, rice and maize alone provide more than half of the global plant-derived energy intake.

35. Plant genetic resources for food and agriculture includes the diversity of genetic material contained in traditional varieties and modern cultivars grown by farmers as well as wild plant species that can be used as food and as feed for domestic animals, and as fibre for clothing, shelter, wood, timber and fuel. Modern agriculture has led farmers to largely abandon their heterogeneous traditional crop varieties in favour of modern and improved, but often uniform varieties. Although much diversity has been conserved in genebanks (ex situ), the erosion of crop diversity resources in the field (in situ) poses a serious threat to the world's food security in the long term. The research centres of the Consultative Group on International Agricultural Research maintain over 600,000 samples of crop, forage and agroforestry genetic resources, available in the public domain. Its seed collections have helped in the recovery of agricultural growth in a number of countries emerging from conflict or following natural disasters such as hurricanes or floods.[24]

36. An issue of considerable controversy in plant breeding is the role of genetically modified organisms. Genetic modification can bring potential (and real) benefits of increasing yields, reducing growing time and improving resistance to disease and pests, which can improve crop production, reducing hunger and creating income for farmers. At the same time, its risks to the environment, including biological diversity, and to human and animal health are largely unknown. Recently arguments have been made for and against genetically modified organisms in the discussions to launch a new green revolution for Africa. Proponents say that Africa must use all available technologies, both conventional and modern biotechnology, to address the challenges facing agriculture, while opponents believe Africa can achieve food security without using genetically modified organisms. Many conclude

[24] More information available at: www.cgiar.org.

that it is not an either/or situation and new technologies should be part of the toolbox of possible solutions.[25]

37. Animal genetic resources used for food and agriculture have also eroded at an accelerated rate in recent years. The *State of the World's Animal Genetic Resources for Food and Agriculture*, published by FAO in 2007, identifies significant gaps in the capacities of countries, particularly developing countries, to manage animal genetic resources in an integrated manner.[26]

5. Animal and human health

38. The introduction of synthetic pesticides (insecticides, fungicides and herbicides) over the past 60 years has changed the role of pest control as part of agricultural intensification. Pesticide use remains the highest in developed countries, but these markets are stagnating or contracting, partly because of strong environmental concerns in several countries. The integrated pest management approach has become the preferred pest control strategy. Integrated pest management is the careful integration of a number of available pest control techniques that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and safe for human health and the environment. Integrated pest management emphasizes the growth of a healthy crop with the least possible disruption of agroecosystems, thereby encouraging natural pest control mechanisms. It is estimated by FAO that integrated pest management can reduce pesticide use by 50 per cent for cotton and vegetable production and up to 100 per cent in the case of rice.

39. Environmental changes, human and animal demographic patterns and changes in farming practices have also been associated with a growing incidence of animal-to-human disease transmission. Some recent cases of known animal-to-human (e.g., zoonotic) diseases include Severe Acute Respiratory Syndrome, avian influenza, and bovine spongiform encephalopathy. As many infectious diseases are zoonotic, FAO, the World Organization for Animal Health and the World Health Organization (WHO) combined and coordinated their alert and response mechanisms in 2006 in the joint Global Early Warning and Response System in order to improve containment and control of major animal diseases.

40. The joint FAO/WHO Codex Alimentarius Commission has contributed significantly to the international harmonization of food safety and quality. Since its foundation almost 50 years ago, the Commission has adopted close to 300 standards on commodities and food safety issues, over 3,000 maximum limits for pesticide residues and veterinary drugs, over 1,000 food additives provisions, dozens of guidelines for contaminants as well as codes of practice to prevent contamination and various texts on food hygiene which have become global benchmarks.

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[25] The debate recently arose over a presentation by the newly established (Sept. 2006) Alliance for a Green Revolution in Africa (AGRA) over whether AGRA would incorporate GMOs in its initial strategy. The conclusion finally reached was that AGRA was not against the use of GMOs but would mainly rely on conventional crops because they could generate quick successes and fit within the framework of African countries. See additional discussion and comments at: http://www.bdafrica.com.

[26] FAO, 2007, *The State of the World's Animal Genetic Resources for Food and Agriculture*, Rome (http://www.fao.org/docrep/010/a1250e/a1250e00.htm).

D. Means of implementation: international trade and investment in agriculture

1. International agricultural trade

41. The past several decades have witnessed a dramatic increase in the integration of the world economy through trade. International trade in agricultural products (including crops, livestock, forestry and fisheries products) has also expanded more rapidly than global agricultural GDP, although at lower rates than for overall trade in goods and services and overall GDP. While agricultural trade has continued to expand over the past 40 years (data through 2003) to approximately $725 billion, its share in total merchandise trade has steadily declined from close to one third four decades ago to around 10 per cent in 2003.[27]

42. During this period, the role of agricultural trade in overall trade patterns has changed as the net flow of agricultural commodities between developed and developing countries has reversed direction. Over the past four decades, the developing countries have seen a major decline in the share of agricultural exports in their total merchandise exports, together with a slower decline in the share of agriculture in their total imports. They have moved from a positive net agricultural trade position, with exports exceeding imports by a significant proportion, to a situation in which agricultural imports and exports have been roughly balanced in recent years. Developed countries have seen their share of both agricultural exports and imports decline more slowly over the same period. Today, for both developed and developing countries, agricultural trade is roughly balanced and corresponds to around 10 per cent of their total merchandise imports.[28]

43. Cereal products, which had comprised the largest share of international agricultural trade, now account for less than 50 per cent in developing countries and less than one third in developed countries, as both groups are now importing more higher-value and processed foods, including edible oils, livestock products and fruits and vegetables.[29]

44. The least developed countries represent a particular case in terms of long-term trends in global agricultural trade. The agricultural exports of this group of countries have declined dramatically as a share of their overall exports, while agricultural imports have consistently represented around 25 per cent of their total imports. The least developed countries have moved from a position of net agricultural exporters to one of net agricultural importers, and since the late 1980s their agricultural trade deficit has widened rapidly. At the same time, the least developed countries account for a very low degree of integration of their agriculture sector into world markets compared with the developing countries overall. African countries spent an estimated $18.7 billion on food imports in 2000, while the value of agricultural exports amounted to $14 billion, only slightly above the 1990 figure.

45. The impact of trade policy on poverty, food security and inequality in developing countries is at the centre of an intense international debate on the role of

[27] FAO, *The State of Food and Agriculture, 2005*, special chapter on "Agriculture, Trade and Poverty: can trade work for the poor?", Rome, 2005.

[28] FAO, FAOSTAT Statistical Database, Rome, 2006 (http://faostat.fao.org).

[29] For a detailed review of agricultural trade, including projections to 2016, see: OECD and FAO, *OECD-FAO Agricultural Outlook, 2007-2016* (Paris and Rome, 2007), pp. 37-46 and tables.

international trade in development. The current Doha Round of trade negotiations makes development and poverty a top priority. While agricultural trade can contribute to an agriculture-based development strategy and the liberalization of trade in agricultural products can have beneficial effects, it is not clear if increased openness to international trade will, on its own, lead to major improvements in economic growth, poverty reduction or food security. Much of the debate in the Doha Round involves improved market access to the developed economies for developing countries' agricultural exports and limiting developed countries' domestic farm-support programmes from placing subsidized commodities on world markets to the detriment of developing country producers.

2. Investment in agriculture

46. Financial investments in the agricultural sector, as in other sectors, can consist of public resource flows, such as official development assistance (grants and concessional funds from donor countries and multilaterals), non-concessional loans by the international financial institutions, private sector external resource flows, private foundation grants and domestic resources, both public and private. Insufficient investment from all these sources over several decades is seen as a major constraint to increasing agricultural production.

47. Over the past 20-25 years, official development assistance to agriculture declined sharply, both as a share of all official development assistance and in absolute terms. The share of agriculture in official development assistance fell from a high of about 18 per cent in 1979 to 3.5 per cent in 2004, while the volume of agricultural official development assistance fell from its high of about $8 billion in 1984 (in 2004 $) to $3.4 billion in 2004. Total official development assistance to agriculture in Africa (both sub-Saharan and North Africa) increased somewhat in the 1980s, but by 2004 had fallen back to its 1975 level of about $1.2 billion.[30]

48. More recently, total official development assistance increased significantly in 2005 (following donor commitments made at the 2002 International Conference on Financing for Development), but the big increase in aid to Africa, especially sub-Saharan Africa, was for debt forgiveness grants to a few large countries. While lending to agriculture by multilateral organizations increased by about 30 per cent in 2003-2005, this was from a very low level, following the steep decline in total lending (especially the World Bank) to agriculture in the 1990s.[31] More recently, the World Bank announced that its investments in agriculture and rural development increased in fiscal year 2007 for the fourth straight year, reaching $3.1 billion, or 12 per cent of total Bank lending. The bulk of this went to South Asia, followed by sub-Saharan Africa.

49. Total official development assistance flows from the major donor countries in 2006 fell by 4.5 per cent to $104.4 billion.[32] Thus, if the share of official development assistance to agriculture that year (data not yet available) remained

[30] OECD, *Credit Reporting System, 2006*. Paris, Organization for Economic Cooperation and Development (OECD); and World Bank, *WDR, 2008 (2007)*.

[31] World Bank, *WDR 2008* and FAO, "Financing of Agriculture: Issues, Constraints and Perspectives", document C 2007/INF/18 prepared for the thirty-fourth session of the FAO Conference, Rome, 17-24 November 2007.

[32] OECD/DAC, *Final ODA Flows in 2006*, released 10 December 2007, Paris. The DAC is the Development Assistance Committee of the OECD.

about the same as in 2004, the absolute volume of aid would fall even further. The World Bank (which is now seeking to increase multilateral investments in agriculture and rural development) has identified several reasons for the decline of donor support to these sectors — which it calls "agroskepticism": (a) falling international commodity prices that made agriculture less profitable in developing countries; (b) increased competition within official development assistance especially from social sectors; (c) emergency responses to numerous crises; (d) opposition from farmers in some donor countries to supporting agriculture in their major export markets; and (e) opposition from environmental groups that saw agriculture as a contributor to natural resource destruction and environmental pollution.[33]

50. Domestic public expenditures by countries in their agricultural sectors have also declined as a share of total public spending, from 11.3 per cent in 1980 to 6.7 per cent in 2002. Recent data indicate that for "agriculture-based countries" (14, of which 12 are in sub-Saharan Africa), the share of public spending on agriculture amounted to about 4 per cent in 2004, down from 6.9 per cent in 1980.[34] The share of agriculture spending in Latin America and the Caribbean has declined even further, perhaps to 2.5 per cent of total public expenditures in 2002 (from 8.0 per cent in 1980).[35] The decrease in public expenditures on agriculture contrasts with spending on education and health, which has increased in all regions.

51. Concern by African countries themselves at the continuing decline in their domestic public resources devoted to agriculture led to the important commitments by African Heads of State and Government undertaken in the Maputo Declaration of 2003 and the adoption at the same time of the Comprehensive Africa Agriculture Development Programme. The Development Programme, which was prepared by the New Partnership for Africa's Development, addresses issues of growth in the agricultural sector, rural development and food security. The Maputo Declaration committed member States of the African Union, inter alia, to implement as a matter of urgency the Development Programme vision for Africa's agriculture (including a 6 per cent annual growth in food production by 2015), and to allocate at least 10 per cent of national budgetary resources within five years (i.e., by 2008-2009) towards agriculture and rural development.[36]

52. These public commitments, along with the agreements contained in the Millennium Development Goals, the 2002 Monterrey Consensus on Financing for Development and the G-8 Summit in Gleneagles, Scotland, in 2005, have been bolstered in recent years by very significant sources of development funding from private foundations. In particular, in 2006 the Rockefeller Foundation, which is known for its key role in supporting the green revolution in the 1950s-1970s, which transformed agriculture in South and South-East Asia and Latin America, teamed up

[33] World Bank, *WDR 2008* (2007).

[34] Fan, Shenggen, *Public Expenditures, Growth and Poverty in Developing Countries: Issues, Methods and Findings* (Baltimore, Maryland, Johns Hopkins University Press) Forthcoming, cited in World Bank, *WDR 2008* (2007).

[35] Stephen Ackroyd and Lawrence Smith, *Review of Public Spending to Agriculture*, OPM, January 2007, cited in: FAO, "Financing of Agriculture: Issues, Constraints and Perspectives", document C 2007/INF/18 prepared for the thirty-fourth session of the FAO Conference, Rome, 17-24 November 2007.

[36] See "NEPAD's CAADP", in *Catalyst for Action: Towards an African Green Revolution*, Report of the Oslo Conference 2006 (Oslo, Yara International ASA), 2007.

with another United States-based non-governmental organization, the Bill and Melinda Gates Foundation, to invest $150 million to launch the Alliance for a Green Revolution in Africa. The long-term partnership seeks to improve agricultural development in Africa by addressing both farming and relevant socio-economic and environmental issues, including soil fertility and irrigation, availability of high-quality and affordable seeds and other improved inputs, farmer management practices, and farmer access to markets and financing.[37]

III. Continuing challenges

53. With the global population projected to grow to 9 billion people by 2050 which is 50 per cent more than today, mostly in the developing world, the pressure on agriculture to feed and sustain these numbers requires innovative solutions. There is no guarantee that agriculture's remarkable success over the past half century will persist, in light of the new challenges and conditions that are prevailing. A 2005 study by the World Bank concluded that, for better or for worse, the agricultural context in many developing countries is far different from what it was even a decade ago.[38] But, even if different, the World Bank's 2007 report on agriculture notes that in the twenty-first century, agriculture continues to be a fundamental instrument for sustainable development and poverty reduction.[39]

54. The renewed focus on agriculture exemplified in recent years by Governments, international organizations and public and private initiatives, such as described in part II above, is encouraging. Improved economic performance in developed countries and in many developing countries promises more rapid advances in hunger and poverty alleviation in the coming years. Still, the task ahead is daunting; each year until 2015, the world must be able to count 31 million fewer hungry people if the goals agreed by the World Food Summit and reaffirmed by the World Summit on Sustainable Development and the Millennium Declaration are to be met. Furthermore, not all countries face equal challenges, and many risk being left behind in the fight against hunger. Those that face the most serious difficulties and need to make the largest efforts are often those that have the least means to do so.

55. Today, world agriculture is called upon to play a variety of roles, in which the trade-offs are considerable and often difficult. While guaranteeing food security for the global population and a source of livelihood for billions of people, particularly the poor, it must also provide ecosystem services to the wider environment, serve as a sink for carbon sequestration and manage and use soil, water, energy and other natural resources efficiently and sustainably, all while minimizing environmental damage. Major uncertainties underlie future developments, including increasing resource scarcity, especially of water, but also of arable land; risks from climate change; higher energy prices; and new market demands, for example, for biofuels.

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[37] The Rockefeller Foundation, *Press Release* dated 12 September 2006, quotes Mr. Gates, the Co-Chair of the Gates Foundation at the launch of AGRA as remarking: "No major region around the world has been able to make sustained economic gains without first making significant improvements in agricultural productivity".

[38] World Bank, *Agricultural Growth for the Poor: An Agenda for Development* (Washington, D.C., 2005).

[39] World Bank, *WDR 2008*.

Added to this is the recent drastic rise in world food prices that threatens the poorest.

56. Particularly in Africa, the challenges of poverty, agriculture and the environment are intertwined and demanding. Food security in Africa has substantially worsened over the past decades and expensive food imports have increased. International food aid flows to cover emergency, relief and recovery operations continue to be essential. Of the 36 countries in crisis currently identified by FAO as requiring external assistance to deal with critical food insecurity, 21 are in Africa.[40]

57. Nevertheless, despite these challenges, recent examples of production gains and rising rural incomes, together with a new determination on the part of developing countries and support from the international community, have led a number of observers to conclude that Africa can feed itself and at the same time preserve the environment and its natural resources.[41] In these efforts, the role of farmers and other rural stakeholders is critical. After years of neglect by donors and national Governments, attention is again focusing on the need to invest in agriculture and small-scale farmers to reduce poverty and hunger, to increase rural development and food security and to promote a sustainable alternative to urban migration. The important role that women farmers play in small-scale agriculture, in particular, requires that gender concerns are integrated into these efforts.

[40] FAO, "Crop Prospects and Food Situation", No. 1, February 2008, Rome. The other "countries in crisis" are in Asia (9), Latin America and the Caribbean (4) and Europe (2).

[41] See Aksel Naerstad, ed., *Africa Can Feed Itself: Conclusions and recommendations from the Conference "Can Africa Feed Itself?"*, Oslo, 6-8 June 2007.

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Rural development

Report of the Secretary-General

Summary

Programmes and policies implemented to reduce rural poverty have met with varying degrees of success. A large number of rural people in many developing countries still do not have access to basic social services such as health, education, water, sanitation and modern energy sources. Markets remained underdeveloped, and infrastructure development has not kept pace with population growth. Overcoming these challenges will require focusing on programmes that contribute to enhancing the efficiency and productivity of agriculture, tapping the potential of the non-farm sector, enhancing the management of natural resources and improving the quality of rural infrastructure. In addition, providing access to rural finance, local markets, technology, education and other social services will be vital to meet the challenge of sustainable rural development.

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I. Introduction

1. The present report presents an updated analysis of the state of implementation of the internationally agreed framework for rural development as contained in chapter 14, "Promoting sustainable agriculture and rural development", of Agenda 21,[1] the Programme for the Further Implementation of Agenda 21 (General Assembly resolution S-19/2, annex) and the Plan of Implementation of the World Summit on Sustainable Development ("Johannesburg Plan of Implementation"),[2] and various sessions of the Commission on Sustainable Development.

2. In addition to rural development at its sixteenth session, the Commission will also review the state of implementation of the following thematic clusters: agriculture, land, drought, desertification and overall progress of Africa as a continent. Those topics are interrelated and constitute important elements of the rural development agenda, even more so in the case of Africa. Each thematic cluster will be discussed in a separate report, and cross-references are made herein where necessary. The present report acknowledges that rural development encompasses both agricultural and non-agricultural activities, although the latter has received less attention in rural development programmes.

3. The present report is prepared on the basis of information and data collected or received from (a) national reports on rural development submitted to the secretariat of the Commission, (b) the results of the regional implementation meetings and meetings of the United Nations specialized agencies, such as the International Fund for Agricultural Development (IFAD) and the Food and Agriculture Organization of the United Nations (FAO), and (c) analysis carried out by development banks and relevant major groups.

II. Review of implementation

A. Facts and figures on rural poverty

4. In developing countries, an estimated 1.2 billion people live in extreme poverty. Poverty is highly concentrated in rural areas and will be for many decades to come. If assessed by an international poverty line ($1 per day), about 75 per cent of the developing world's poor live in rural areas.[3] The world poverty rate fell by 5.5 percentage points between 1993 and 2002 from 27.8 per cent to 22.3 per cent, with 106 million fewer people living in extreme poverty than a decade earlier. It is important to highlight that the aggregate poverty reduction has largely been the result of rural poverty reduction. Therefore, over the same period, the number of poor living on $1 per day fell by 153 million in rural areas but increased by 47 million in urban areas, in part due to rapid migration from rural to urban areas.

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[1] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*, vol. I, *Resolutions Adopted by the Conference* (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

[2] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

[3] See *World Development Report 2008: Agriculture for Development*.

5. Even though the methodology used in the World Bank study defines poverty in terms of household consumption per capita, such a definition is not exhaustive and does not reflect the impact of access to other basic social services. Experience shows that rural poverty stems from different sources, such as limited economic opportunities and lack of access to social services (for example, water and sanitation, health, education), basic assets, markets, information and decision-making.

6. The regional data, as set out in the table below, show a strong differentiation among regions of the developing world in terms of both the urban/rural share of the poor and urban/rural poverty rates. In 2002, rural poverty rates were the highest in South Asia and sub-Saharan Africa at 39 and 51 per cent, respectively, and the absolute number of poor has increased in both regions since 1993.

7. The percentage worldwide of people living on less than $1 a day in rural areas has declined, mostly from the gains made in China, but still remains extremely high. It fell from 37 per cent in 1993 to 29 per cent in 2002, and it is more than double the urban rate of 13 per cent.

Table 1

Urban and rural poverty measurement using the poverty line of $1.08 per day in 2002 (up from $1 per day purchasing power parity in 1993)

Region	*Number of poor (millions)*		*Head count index (percentage)*		*Urban share of the poor (percentage)*	*Rural share of the poor (percentage)*
	Urban	*Rural*	*Urban*	*Rural*		
East Asia and Pacific	16.27	223.23	2.28	19.83	6.79	93.21
Eastern Europe and Central Asia	2.48	4.94	0.83	2.87	33.40	66.60
Latin America and the Caribbean	38.33	26.60	9.49	21.15	59.03	40.97
Middle East and North Africa	1.21	4.88	0.75	3.82	19.87	80.13
South Asia	125.40	394.34	32.21	39.05	24.13	75.87
Sub-Saharan Africa	98.84	228.77	40.38	50.86	30.17	69.83
Total	**282.52**	**882.77**	**12.78**	**29.32**	**24.24**	**75.76**
Less China	**278.52**	**707.76**	**16.28**	**31.72**	**28.24**	**71.76**

Source: World Development Report 2008.

B. Rural development programmes and policies

8. A large number of countries with predominantly rural economies have implemented wide-ranging policies and programmes, with the main thrust on employment generation and poverty reduction, with varying degrees of success. A review of currently available poverty reduction strategies indicates insufficient focus on rural areas. The proposed strategies are agricultural rather than rural, and the focus of those strategies is more on increasing agricultural productivity than on

reducing rural poverty.[4] In some cases, provision of social services for livelihoods and natural resources management are hardly touched upon, yet they are critical for the livelihoods of the rural poor.

9. Experience shows that effective approaches towards rural poverty and vulnerability go beyond investments in agriculture and food security. In this regard, some areas that have proven successful in reducing rural poverty include rural infrastructure, natural resource conservation, land reform, water rights, empowerment of women and off-farm employment opportunities. Box 1 highlights some successful examples.

Box 1
Good practices in rural development: some examples

China: rural industrialization, enterprise development, and human resources development are used as mutually supportive components of rural development under which surplus rural labour can embark on enterprise development without leaving their homes in rural areas.

Republic of Korea: combining community organization and empowerment with infrastructure development has visibly contributed to sound lifestyles, thus leading to higher levels of social development.

India: an improved interface between the citizens and the Government in the Dhar district has enabled interaction and dialogue, the formation of new alliances, the development of interpersonal networks and the establishment of cross-sectoral links. Greater access and control over information have resulted in increased empowerment and better governance.

Bangladesh: the benefits of access to information technology are evident from the Village Phone project in Bangladesh, which combines the experience of the Grameen Bank with village-based microenterprises and the latest digital wireless technology to provide modern telecommunication services to the poor.

Pakistan: a central strategy of the Aga Khan Rural Support Programme in Pakistan was to create or strengthen the institutional structure at the village level through which people can determine priority needs and decide how best to manage common resources in the interests of the community as a whole.

Source: http://www.unescap.org/rural/bestprac/index.htm.

10. Official development assistance for agriculture and the rural sector has fallen steadily since 1988. Today, only about 8 per cent of bilateral official development assistance goes to rural development. The World Bank's lending to rural areas from

[4] "Achieving the Millennium Development Goals: Rural investment and enabling policy", panel discussion paper for the twenty-eighth session of the Governing Council of the International Fund for Agricultural Development (IFAD), Rome. See also IFAD poverty portal at http://www.ruralpovertyportal.org/english/regions/africa/mwi/approaches.htm.

1999 to 2001 averaged around only $5 billion per year. That amount represents about 25 per cent of the Bank's total lending and therefore is not congruent with the greater incidence of poverty in rural areas.[5]

11. Despite considerable attention to capacity-building in rural development programmes, substantial gaps remain. Bridging those gaps will be essential to mobilizing and empowering rural communities through training, education, public awareness programmes and technology transfer. Poor and limited rural infrastructure has a profound impact on communication, access to markets and information, and the development of human capacities. Local media, rural radio and new information and communication technologies are critical for raising awareness in rural communities and providing access to information and technical advice.

12. Rural development programmes have gone through a great deal of transformation in their scope and content over the past couple of decades, ranging from addressing food security concerns to a more integrated approach to rural development, including community empowerment and the protection and management of natural resources. Important problems identified during this evolutionary process include (a) limited public sector capacities at the local level, (b) lack of empowerment of rural people in implementing rural development programmes, (c) poor interaction among the actors involved in developing and implementing rural development programmes, (d) heavy reliance on technical assistance and limited attention to local capacity-building needs, (e) insufficient attention to multisectoral and cross-cutting concerns, and (f) national development efforts that are skewed in favour of urban areas, which receive a disproportionate allocation of resources.

1. Agricultural development

13. Agriculture remains the main pillar of poverty reduction in rural areas by providing essential nutrients as well as employment and income-generating opportunities to the rural labour force. For example, the average real income of small farmers in southern India rose by 90 per cent and that of landless labourers by 125 per cent from 1973 to 1984 as the result of the Green Revolution.[6] Most of the countries that have failed to launch an agricultural revolution have remained trapped in poverty, hunger and economic stagnation. This is especially true for sub-Saharan Africa, in which 16 of the 18 most undernourished countries in the world are located.

[5] See Csaba Csaki, *Reaching the Rural Poor: A Renewed Strategy for Rural Development*, World Bank 2003.

[6] Ibid.

Box 2
Water-agriculture-poverty linkages

A review of water and poverty linkages in six Asian countries led to the following conclusions: (a) access to agricultural water and irrigation reduces chronic poverty incidence; (b) the impact of irrigation on poverty reduction is highest where landholdings are equitably distributed; (c) effective reduction of rural poverty requires that agricultural water/irrigation development be targeted at poor communities/areas/localities; and (d) unequal land distribution is associated with inequitable distribution of agricultural water benefits.

Source: Hussain et al., Agricultural Water and Poverty Linkages: Case Studies on Large and Small Systems, Asian Development Bank 2004.

14. Livestock provides over half of the value of global agricultural output and one third in developing countries. Not only does it contribute to rural livelihoods, employment and poverty relief, but it is also a crucial source of financial capital for the rural poor. For example, in a study of household poverty dynamics in 20 communities in Kenya, researchers found that more than 40 per cent of families that escaped poverty had done so by diversifying their farm income, primarily by acquiring livestock. The institutional context in which the sector operates is changing. Over the past decade, public and private sector roles have become increasingly stratified, with an emphasis on government doing better with less. However, improvements in the physical infrastructure have not been accompanied by the institutional infrastructure.

15. Although countries have launched specific initiatives and programmes aimed at increasing agricultural productivity, the results have been mixed (see E/CN.17/2008/3). For example, in Africa, the Alliance for a Green Revolution in Africa was launched to train agricultural scientists and improve crop varieties, leading to the development and commercialization of several improved crop varieties. Currently, 63 per cent of African countries allocate less than 6 per cent of their national budgets to agriculture, as against the target of 10 per cent or more agreed under the 2003 Maputo Declaration (see A/58/626, annex I). The main thrust of policies in the countries of South Asia has been the enhancement of agricultural productivity and the development of rural physical infrastructure.

16. In Latin America and the Caribbean, several practical and policy initiatives have been put in place to tackle rural poverty through improvement in agricultural practices, focusing on increasing participation of the rural poor, particularly in El Salvador, Guatemala, Honduras and Nicaragua. Among the objectives of such initiatives are to provide information and knowledge to assist in the design of strategies for poverty alleviation and sustainable rural development as well as to provide information and knowledge in order to support innovation in agriculture and food processing to meet increasing competition in local and global markets.[7]

17. A necessary component in meeting the Millennium Development Goals related to poverty and hunger, among others, is a more productive and profitable

[7] See http://www.ruta.org/temasdeTrabajo_PACA.php?id=2#dcsarrollandoPolitica.

agricultural sector, but prospects of increasing agricultural productivity are hindered by many factors. They include age-old land tenure systems, poor land quality, subsistence farming practices, lack of access to markets and capital inputs, high transportation costs, highly variable climatic conditions and a scarcity of water. Modern technologies are simply not economic when farmers have to pay three to five times the world price for fertilizer and other chemical inputs.[8] Increasing the production of food staples is especially challenging for Africa because it has poor rural infrastructure and weak institutions to support agricultural development.

18. Moreover, the evidence suggests that in most developing countries changes or shifts in public policy have not been very conducive towards facilitating producer access to knowledge and production inputs, promoting environmentally sustainable production systems, ensuring public health and food safety standards, and encouraging the development of efficient markets and processing facilities. The economic impact of taxes, subsidies and direct market interventions by Governments has not been that pronounced.

19. Among developing countries, investments in agricultural research and development have slowed down dramatically in the past decade despite the high social return on investment during the same period. While the public expenditure on research and development remained stagnant in developing countries, it has increased almost twofold in developed countries, thus further widening the knowledge gap between poor and wealthy nations.[9]

2. Non-farming activities

20. It has been noted that when agricultural development is complemented by non-farm growth of the rural sector, the impact on reducing rural poverty is more pronounced. In most countries, non-farming activities account for 30 to 50 per cent of income in rural areas.[10] Based on the share of aggregate growth originating in agriculture and the share of aggregate poverty ($2 per day) in the rural sector, the World Bank classifies countries into three categories: agricultural-based, transforming and urbanized.

21. Agricultural-based economies are found mostly in sub-Saharan Africa. Even in those economies, the growth of agriculture can stimulate demand in domestic industry and services. In transforming economies, mostly in Asia, North Africa and the Middle East, the rural non-farm economy accounts for most of the economic growth. In India and Indonesia, growth in rural services was estimated to have contributed at least as much as growth in agriculture towards reducing poverty. Rural trading and transport, mostly of food, make up about 30 per cent of rural non-farm employment.

22. In urbanized countries with a less predominant rural sector, increasing non-farming activities are not necessarily linked to agriculture. In those countries, found mostly in Eastern Europe and Latin America, agriculture makes up only 6 per cent of the economy. In some Latin American countries, rural non-farming activities grew more than 10 per cent a year from 1980 to 2000. In Chile, they rose from

[8] Hazell, Peter, "Is agriculture still important for economic development and poverty reduction?" Commentary, International Food Policy Research Institute Forum, September 2005.

[9] See http://www.asti.cgiar.org and *World Development Report 2008: Agriculture for Development*, table 7.1.

[10] *World Development Report 2008: Agriculture for Development*, p. 203.

25 per cent of total rural employment in 1960 to 49 per cent in 2002, and the growth in Brazil was from 14 to 31 per cent during the same period. Although Brazil experienced dramatic growth in the agriculture sector as well, much of the reduction in rural poverty came from income transfers and employment in the rural non-farm economy. This was in caused major part by the introduction of more profitable farming practices (no-tillage farming systems), which at the same time reduced time and labour requirements for small farmers and allowed small family farmers to enter into value adding or other non-farm related economic activities.

3. Access to social services and infrastructure development

Water and sanitation[11]

23. About 84 per cent of the population without access to improved sources of drinking water live in rural areas. Only 39 per cent of the world's rural population have access to any type of improved sanitation facility. Although the deficit is shrinking over time, only 49 per cent of the global rural population will be served in 2015 if the current trends continue, and the relative situation of the rural population in 2015 will still be very unfavourable.

24. Low access to a safe water supply and adequate sanitation is the root cause of many diseases that afflict Africa and is a contributory factor to the high infant and maternal mortality rates in many countries. The World Health Organization (WHO) has reported that approximately 50 per cent of all Africans suffer from one of six water-related diseases.

25. Several initiatives are being implemented to improve access to water and sanitation services and water resources management (see E/CN.17/2008/11). Examples in Africa included the establishment of the African Ministers' Council on Water to promote cooperation for poverty eradication through better water management and the African Water Facility that was launched in 2002, with a focus on capacity-building and policy, institutional and legal reform in the water sector. Water operators' partnerships are being developed and institutionalized in various regions (see box 3).

Box 3
Rural Water Supply and Sanitation Initiative in Africa

Most of Africa's population lives in rural areas (62 per cent), and access to water supplies and sanitation services is lowest in the rural areas, at about 47 per cent for water and 45 per cent for sanitation. To meet the water supply and sanitation challenges, the African Development Bank has established the Rural Water Supply and Sanitation Initiative. The overall goal of the initiative is poverty reduction through the provision of safe water and basic sanitation to 80 per cent of the rural populations in Africa by 2015, with eventual 100 per cent coverage by 2025. The attainment of those targets will require cumulative investments estimated at about $14.2 billion.

Source: http://www.afdb.org/portal/.

[11] Much of the access-related statistics reported in this section are taken from the Joint Monitoring Programme report (2006) of the United Nations Children's Fund and the World Health Organization.

26. Key challenges for the provision of effective and sustainable water and sanitation services in rural areas include: (a) decentralizing management to the lowest appropriate level; (b) engaging rural communities in the planning, financing, implementation and operation of water supply schemes; (c) making the provision of water and sanitation services an integral part of rural development strategies; (d) ensuring the availability of funds and capacities to keep rural water supply systems viable and functional; and (e) scaling up of successful experiences. Increased financing is clearly needed, but it will be effective only if supported by community capacity to ensure the sustainability of investments.

Rural energy

27. At present, 2.5 billion people rely on traditional fuels, such as wood, dung and agricultural residues, to meet their heating and cooking needs. Although 800 million people in developing countries have been connected to power grids in the past 20 years, 1.6 billion people, mostly in rural areas, still do not have access to electricity.[12] Policy frameworks by and large remain deficient in addressing the challenges of energy, particularly with regard to providing access to affordable modern energy services for cooking and heating, including energy in rural development plans.

28. In most cases, subsidies have been targeting consumption rather than promoting access. On top of this, subsidies for electricity consumption tend to benefit rich people more than the poor. Addressing those challenges requires establishing methods, structures and capacities at the local level to attract investments in energy services and mobilizing resources for investment in rural energy and development.

Health services

29. Rural people in developing countries have long suffered from a variety of water- and insect-borne diseases, which have reduced their capacity for productive work and thus diminished their chances of escaping from poverty. The past decade has seen growing inequalities in access to health care. On the one hand, private hospitals with state-of-the-art facilities cater to the elite in urban centres, sometimes with government subsidies. On the other hand, the majority of the poor, especially in rural areas, are left to market forces, and medical expenditure is the second highest cause of rural indebtedness.

30. Progress has been made in reducing the incidence of diseases such as schistosomiasis, while others, such as malaria, tuberculosis and HIV/AIDS, still constitute major threats in rural areas. The prevalence of HIV/AIDS, in sub-Saharan Africa in particular, has reduced the number of adults able to support their families and the broader rural economy. Malaria aggravates rural poverty because of the costs of treatment and of lost work time. The Governments of some poor countries have doubled expenditure on health and education since 2000 but still cannot afford to pay adequate salaries.[13] The experience of a number of countries shows that mass recruitment drives help in overcoming the shortage of staff in the short run (see box 4).

[12] *World Energy Outlook 2006*, International Energy Agency.

[13] "Paying for people: financing the skilled workers needed to deliver health and education services for all", Oxfam policy paper, April 2007.

Box 4
Scaling up of rural health services

Pakistan: "Lady Health Workers". In 1994, Pakistan established a programme to expand family planning and primary care services. There are now some 80,000 "Lady Health Workers" who provide basic health services and perform data monitoring for nearly 70 per cent of the population. This has extended public health services and some maternal health services to many thousands of people in rural areas who otherwise would have none.

Thailand: recruitment for rural populations. Between 1979 and 2000, the Government of Thailand launched a series of reforms in the health sector to combat the inequitable distribution of health personnel across the country. Every time the reforms were introduced, they led either to a brain drain from the public sector to the private sector or the reverse of this trend back in favour of the public health system, depending upon the nature of the reforms and incentives provided therein.

Islamic Republic of Iran: *comprehensive training and health-system development*: Since 1985, rural health workers in the Islamic Republic of Iran are selected from local populations and trained locally. The result is that access has rapidly expanded in all areas, key health indicators have improved significantly and reliance on foreign medical workers has disappeared entirely after the number of locally trained physicians increased by a factor of five. The system has achieved almost universal vaccination coverage and reduced the under-five mortality rate from 70 deaths to 33 per 1,000 in the period of 15 years.

Source: "Paying for people: financing the skilled workers needed to deliver health and education services for all", Oxfam policy paper, April 2007.

31. The major constraint to training and recruiting health professionals is the lack of funding for strong public systems. Overall, the 2001 report of WHO to the Commission on Macroeconomics and Health proposed a $34 per capita expenditure on health systems to provide basic, universal health services, compared with existing levels of between $13 and $21. To overcome funding constraints, the African Union heads of State met in Abuja in 2002 and pledged to increase government investment in health, working towards a target of 15 per cent of the total government budget. Admittedly this is a tall order; only seven countries with shortages of health workers invest 15 per cent or more of government budgets on health.

Rural infrastructure

32. Limited access to infrastructure severely restricts the goods and services which are available to the rural poor, such as electricity, telephones, transport, schools,

health centres, towns and markets.[14] Service gaps in the developing countries are enormous, and the differences in the availability of infrastructure between urban and rural areas are stark.

33. The available statistics show that 46 per cent of households in rural areas had access to electricity, compared with 89 per cent in cities; 12 per cent of households in rural areas had in-house taps, compared with 59 per cent of urban households; and 7 per cent of households in rural areas had sewer connections, compared with 61 per cent of urban households.[15] Very few rural households had telephones — only 8 per cent compared with 38 per cent in urban areas. One positive recent development has been the rapid growth in ownership of cellular phones, which allow farmers to communicate with potential buyers of their produce and to access formal market information services. In some countries, however, Governments still need to encourage access to those technological developments. About 700 million rural people live more than two kilometres from an all-season road. For many, the obstacles presented by inadequate infrastructure make daily living difficult and escaping from poverty seemingly impossible.

34. Poor access to infrastructure continues to place a disproportionate burden on rural women in parts of sub-Saharan Africa, where women spend many hours each day on travel and transport just to meet household subsistence needs. Widely dispersed populations, low volume economic activities and sparse service provision are major challenges to cost-effective rural infrastructure and require significant investments and new approaches, such as transport hubs, in order to be overcome. In developing countries, the lack of road access to markets and limited processing facilities make it difficult for many rural communities to market their produce. Public investment to expand access to rural roads and transport services is critical to reducing transportation costs and transit time to markets.

35. The rural digital divide exists firstly owing to the lack of telecommunications infrastructure and connectivity and secondly owing to economic disparities, with a contributory factor being weaker human capacities to exploit the technologies, with all of these leading to less effective communication and exchange of information in rural areas. In summary, poverty reduction can be hastened if rural roads, irrigation, and rural electrification interventions are made in locations that are pivotal in terms of distributive and multiplier effects favouring the poor.[16]

4. Vulnerable groups in rural development

36. In order for rural development policies and programmes to succeed, they should be gender responsive and address gender disparities and the needs of socio-economically disadvantaged groups. By and large, the current trends suggest otherwise. For example, in the case of women, evidence from country case studies suggests that rural women's ownership and control over productive resources and other assets are far below those of men. Similarly, indigenous peoples, who make up about 5 per cent of the world's population, constitute 15 per cent of the world's

[14] Alberto Zezza, Paul Winters et al., "Rural household access to assets and agrarian institutions; a cross country comparison", Food and Agriculture Organization of the United Nations (FAO), 2007.

[15] Ibid.

[16] Ifzal Ali and Ernesto M. Pernia, "Infrastructure and poverty reduction. What is the connection?" Economics and Research Department, Policy Brief Series No. 13, Asian Development Bank, January 2003.

poor,[17] suffering higher rates of landlessness, malnutrition and internal displacement than other members of society, and having lower levels of literacy and less access to health services.[18]

37. Rural youth is another important group that is capable of playing an important role in sustainable rural development because over half the global youth live in rural areas of developing countries. In 2004, nearly half the global youth population, between 15 and 24 years of age, were poor and living (as dependants) on less than $2 a day,[19] while 20 per cent were living in absolute poverty on less than $1 a day.[20] Between 130 and 140 million young people are illiterate, and in sub-Saharan Africa and South Asia more than one in three young people were illiterate in 2002.[21]

38. About 80 per cent of disabled people live in rural areas, and most of them are farmers and rural workers. Programmes that have proven effective in sustaining their livelihoods are those targeted on the development of skills for specialized farming (such as apiculture, sericulture and vermiculture), enterprise development associated with tool manufacture and repair, and food processing.

5. Adapting to climate change

39. Changes in climate can have significant impacts on agricultural productivity, and thus on rural livelihoods. Poor people in rural areas are the most vulnerable to the effects of climate change. Many live on ecologically fragile land and depend upon agriculture, livestock, fisheries and forestry, all of which are resources affected by climate change. If the predicted trends in climate change are confirmed, severe limitations will be imposed on future potential gains from agriculture. Also, climate change threatens to reverse the gains made in the past decades towards food security and poverty alleviation.

40. The impacts of climate change — including more frequent and severe drought and flooding as well as shorter growing seasons — are becoming a source of grave concern to the sustainability of agriculture in many developing countries. This vulnerability is particularly pronounced in dry, drought-prone regions where water is scarce and lands are being degraded. Crop failures and livestock deaths are causing higher economic losses and undermining food security with ever greater frequency, especially in parts of sub-Saharan Africa. Food prices are rising. Crop yields could drop by 50 per cent by 2020 in some countries.[22]

41. Although climate change is occurring and will continue to do so, Governments have undertaken little action in terms of preparing response strategies and promoting resilience. This is likely to further exacerbate the living conditions of poor rural households and farmers who are dependent upon natural resources and

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[17] See "Indigenous peoples", IFAD 2007, available at http://www.ifad.org/english/indigenous/index.htm.

[18] See "Statistics and key facts about indigenous peoples", IFAD 2007, available at http://www.ruralpovertyportal.org/english/topics/indigenous/statistics.htm.

[19] See Guide to the Implementation of the World Programme of Action for Youth, United Nations Department of Economic and Social Affairs, 2006.

[20] World Youth Report 2005: Young People Today and in 2015, United Nations Department of Economic and Social Affairs, 2006.

[21] Bennell, P., "Knowledge and skills for development, promoting livelihood opportunities for rural youth", IFAD 2007.

[22] Climate Change: a Development Challenge, IFAD Press Release, 2007.

subsistence agriculture. Moreover, limited institutional and financial capacities at decentralized levels to cope with the challenges posed by the climate change affects the rural communities in terms of hunger, poverty and health impacts. Greater inter-agency and intersectoral collaboration and enhanced technical and financial capacities are vital for developing effective adaptation strategies and programmes.

6. Building human capital: education and training

42. Education and training are two of the most powerful weapons in the fight against rural poverty and the promotion of sustainable development in rural areas. Evidence shows that non-attendance in school, early drop out of students, adult illiteracy and gender inequality in education are disproportionately high in rural areas, as is poverty. Urban/rural disparities, in both educational investment and the quality of teaching, are on the rise. By and large, not much progress has been made in terms of linking educational activities to the specific needs of the rural community for skills and capacity development to seize economic opportunities for improving livelihoods and quality of life (see box 5).

43. An initiative on "Education for rural people"[23] was launched during the World Summit on Sustainable Development with the objectives to increase access to basic education for rural people, to improve the quality of basic education in rural areas and to foster national capacity to plan and implement basic education in a way that addresses the learning needs of rural people. This initiative has contributed positively in educating farmers, but the results have been uneven and the progress slow.

Box 5

Education as a rural development strategy

Educational attainment in the rural United States reached a historic high in 2000, with nearly one in six rural adults holding a degree from a four-year college, and more than three in four having a high school diploma. According to a recent study, rural counties with high educational levels saw more rapid earnings and income growth over the past two decades than counties with lower educational levels. However, economic returns to education for rural areas continue to lag behind those for urban areas. Preliminary research also demonstrates a connection between better schools and positive outcomes in terms of earnings and income growth for rural workers and rural communities.

Source: http://www.ers.usda.gov/AmberWaves/November05/Features/Education.htm.

44. Educational services in rural areas are severely affected by lack of facilities and schoolteachers. For example, an estimated 1.9 million primary schoolteachers are needed globally today,[24] and 80 million children of primary school age do not

[23] The initiative was launched during the World Summit on Sustainable Development in 2002 by the United Nations Educational, Scientific and Cultural Organization with a focus on education for rural people within the framework of the Education for All initiative.

[24] Ibid.

attend, most of them in rural areas. In some parts of sub-Saharan Africa and southern Asia, there is only one third to one quarter of the required number of properly trained teachers. Sub-Saharan Africa will need to increase its current number of 2.4 million teachers by 68 per cent in the coming 10 years in order to reach the target of education for all.

45. In some countries there are also legal obstacles to schooling, such as the lack of a birth certificate in rural areas or the denial of citizenship to certain rural ethnic minorities. Finally, war and conflict, which affect mostly rural areas, disrupt the provision of educational services and impede access and regular school attendance. During the 1990s, in sub-Saharan Africa, numerous armed conflicts and the growing HIV/AIDS pandemic severely disrupted schooling.

C. Natural resources management

46. Sustainable management of natural resources is vital in order to ensure that development potential in rural areas is maintained for the future. About three out of four poor people live in rural areas, where they depend on natural resources for their livelihoods. More than 1.3 billion people depend on fisheries, forests and agriculture for employment, almost half of all jobs worldwide. Research findings describe a great deal of variability in the causes of environmental degradation, ranging from adverse or catastrophic natural events to poor governance and management.

1. Land management

47. The failure to manage land resources in an integrated, holistic manner has led to a number of serious problems and poses barriers to achieving sustainable development. Evidence shows severe degradation of land resources in the form of erosion, desertification, depletion of groundwater, salinization of soils and dumping of toxic mine wastes, and so on. More than 40 million hectares of land are affected globally by salinization and flooding. Moreover, every year 19.5 million hectares of valuable agricultural land is lost to urbanization and industrial use, forcing subsistence farmers onto ever shrinking and more marginal lands.

48. Current land management approaches face a number of barriers to address a multitude of interrelated problems, including deforestation, desertification, air and water pollution, and uncontrolled expansion of human settlements in urban and rural areas (see E/CN.17/2008/5). For example, deforestation in Nepal and the surrounding mountains leads to flooding of the Ganges and other river systems that pass through countries downstream.

49. Barriers also include limited access to appropriate information and technology, weaknesses in institutional infrastructure, unsustainable land-use practices and conflicts between land-use goals.

50. Well defined, secure, and transferable rights to land are crucial to rural development efforts because land tenure security generally contributes to social stability, while tenure insecurity can contribute to social instability and conflict. A number of countries in Africa (Kenya, Mozambique, Zambia), Central and Latin America (Brazil, Mexico), Asia (Cambodia, Philippines) and Eastern Europe and Central Asia (Albania, Armenia, Georgia) have reformed their land laws and land policies over the last 10 years in ways that yield widely shared benefits. In contrast,

countries as diverse as Colombia, Zimbabwe and Côte d'Ivoire continue to face the challenge of developing land policies.

2. Water resources management

51. The greater competition for water among extremely diverse users with very different types of water needs has made water management a complex task. The agriculture sector is still by far the largest user of water, but water losses remain high. Global estimates for irrigation efficiency vary, but the average is about 43 per cent. Irrigation efficiencies typically range from 25 to 45 per cent in Asia but up to 50 to 60 per cent in Israel, Japan and parts of China.[25]

52. Institutional reforms in the water sector worldwide show a similar pattern. Although many Governments have succeeded in passing water laws, it has often taken years to convert them into practice. There are also cases in which countries have passed laws that have had little or no impact. A key aspect of the institutional discussion has been what Governments should or can do; make laws, set up regulatory organizations, turn over irrigation systems and specify property rights. Ways and means to involve water users and influence their behaviour towards water management and conservation have received little attention in the institutional analysis, and thus in the policy frameworks (see E/CN.17/2008/11).

53. Major obstacles to sustainable water resources management include: limited capacities of water management institutions, inadequate mechanisms to facilitate water transfers from agricultural to urban water use in ways that protect the agricultural economy and the associated agricultural values, absence of strategies to deal with the impact of climate change, limited success in operationalizing the principle of "user pays, polluter pays", limited stakeholders consultations, and incompatibility of tariff structures with economic efficiency and social equity objectives. In addition, the lack of training and knowledge of farmers contributes to wasteful water use practices in agriculture.

3. Forestry management

54. It is estimated that 1.6 billion people globally rely heavily on forest resources for their livelihoods. Therefore, adherence to sustainable forest management principles and practices is fundamental to successful implementation of pro-poor programmes in rural settings (see box 6). Many poverty reduction strategies emphasize rural development as one of their main instruments but they fail to recognize the dependence of the rural poor on forests for their survival and the potential of the forest sector to contribute to rural development.

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[25] Seckler, D. et al., "World water demand and supply, 1990 to 2025: scenarios and issues". Research Report No. 19, International Water Management Institute, Colombo 1998.

Box 6
Share of forestry in rural incomes

The rural poor derive, on average, one fifth of their household income from forests, mostly from non-timber products such as wild foods, fuel, fodder and thatch grass.[a] Regretfully, much of the economic value of forests to the poor is missed in official accountings of the forest economy. Kenya is a typical example. By official estimate, the formal forest sector generates only about $2 million in earnings per year for sawn timber, pulp and other industrial wood products. This is dwarfed by the value of the informal forestry sector, which contributes some $94 million in value to rural households in the form of charcoal, fuel wood and the panoply of other forest products. This does not include the recreational value of forests for leisure and tourism, which could amount to $30 million or so. Since so much of this forest value accrues to the informal sector, most of it is missed.

Source: Mogaka et al., "Economic aspects of community involvement in sustainable forestry management in eastern and southern Africa", World Conservation Union, Eastern Africa Programme, 2001.

[a] Vedeld et al., "Counting on the environment: forest incomes and the rural poor", Environmental Economic Series, Paper No. 98, World Bank, 2004.

55. The FAO report on the state of the world's forests notes that forests make a valuable contribution to sustainable development in all parts of the world, but that progress towards sustainable forest management has been uneven. The world has just less than 4 billion hectares of forest, covering about 30 per cent of world's land area. From 1990 to 2005, the world lost 3 per cent of its total forest area, an average decrease of some 0.2 per cent per year. Some regions, notably those in developed countries and having temperate climates, have made significant progress; institutions are strong and forest area is stable or increasing. Other regions, especially those with developing economies and tropical ecosystems, continue to lose forest area and lack adequate institutions to reverse this trend. The biggest limitation for evaluating progress is weak data. Most countries manage forests for multiple uses, and increasing attention is being paid to the conservation of soil, water, biological diversity and other environmental values. However, the continuing decline in primary forests in most tropical countries is a matter of serious concern.

4. Aquaculture, fisheries and other resources

56. Approximately 90 per cent of total aquaculture production takes place in developing countries. As such, aquaculture makes an important contribution to poverty alleviation, food security and the social well-being of rural people. In many countries, however, this potential has not yet been fully realized.

57. Historically, most aquaculture practices around the world have been pursued with significant social, economic and nutritional benefits and with minimal environmental costs. However, this trend seems to be changing because of weak regulatory frameworks and the too rapid development associated with the great commercial potential of some high value species. Lack of awareness of the role of aquaculture in rural development persists at different levels of rural development

planning. The impact of aquaculture on food security and poverty alleviation in rural areas is also poorly documented and not well known.

58. An estimated 250 million people in developing countries are directly dependent on small-scale fisheries for food and income, primarily in rural areas. In Thailand, for example, 90 per cent of the nation's fisheries are still small-scale operators.[26] In the lower Mekong River Basin, a study in 2002 found that 40 million rural dwellers — many of them poor — engage in seasonal fishing activities. In the Lao People's Democratic Republic, where the incidence of rural poverty is quite high, 70 per cent of all farm households augment their family food supplies and incomes with fish.[27]

59. In many rural settings, the income generated from common pool resources (for example, forests, fisheries, reefs, waterways, pastures and mineral resources) is a major constituent of the household incomes of the rural poor. A combination of factors, including privatization, agricultural intensification, population growth and ecosystem degradation, have caused common property areas to dwindle in size, quality and availability to the poor in much of the world.[28]

D. Rural finance

60. Access to finance is increasingly acknowledged as a contributor to eradicating rural poverty. For example, the African Development Bank has launched a partnership to help tackle the limited access to and high costs of finance in Africa which prevent, for instance, 20 per cent of adults in sub-Saharan Africa from holding a bank account at a formal or quasi-formal financial institution.[29] The development of a sustainable financial sector in rural areas faces many challenges but can provide the foundation leading towards increased investment and income opportunities to rural and agricultural households and businesses. Development banks and agencies usually assert that public intervention in rural financial markets has been detrimental to their sound development,[30] but do acknowledge the role of Government in building the proper regulatory and institutional infrastructure to support the development of financial markets in rural areas.

61. Geographic dispersion of financial institutions, or remote access to their services, is another area that needs to be addressed in order to reach the more remote and less densely populated rural areas.[31] Moreover, the diversity of rural areas, from an intra- or interregional perspective, and of the needs of clients calls

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[26] See http://www.wri.org/publication/content/8061.

[27] Sverdrup-Jensen, "Fisheries in the Lower Mekong Basin: Status and Perspectives", Mekong River Commission Technical Paper No. 6, 2002.

[28] See http://www.wri.org/publication/content/8055.

[29] See http://www.adb.org/Documents/Periodicals/ADB_Review/2003/vol35_6/pawnshops.asp.

[30] Fernando, N. A. and Moyes, R. T., "Moving towards inclusive rural financial markets in Central Asia", in Lamberte, M. B. et al., Beyond Microfinance — Building Inclusive Rural Financial Markets in Central Asia, Asian Development Bank, 2006.

[31] An argument used against such delocalization is that in certain remote areas the provision of financial services is economically unsustainable. This is certainly a valid affirmation in Latin America but has proved wrong, for instance, in Mongolia. In that country, despite a population density of 1.5 persons per km^2, its formal financial institutions have proved to be viable and efficient.

out for a wide array of financial institutions, from formal to informal ones, which are able to meet specific needs.

62. Informal finance of various types plays an important role in rural markets. Village banking institutions are present in many rural areas around the world. Those institutions, often started by non-governmental organizations, have generally performed well in terms of sustainability indicators, such as adjusted return on assets and operational self-sufficiency, and over time may form strategic partnerships with banks to expand their services and products. Local savings and credit associations have a mixed record but generally do well when adequate management is in place. Given the focus of those organizations on poor clients, with added capacity they would present a greater potential in fighting rural poverty.

63. Self-help financial organizations have grown significantly in Africa and Asia. They are adapted to local market conditions and provide short-term loans and savings for household consumption-smoothing. Their services are very limited. By themselves, these informal lenders are not equipped to finance substantial long-term investments unless they form linkages with the formal sector.

64. In addition there are other sources of non-bank rural financial services. They include short-term finance from pawnshops, whose operations are very simple and fast with low transaction costs for both lender and borrower. Another source is through remittances, which are now serving as an important source of rural finance. Migration gives rise to remittances that currently benefit some 1 billion people, almost one sixth of the global population,[32] the majority of whom live in rural areas. Policies that support rural livelihoods and encourage investment in rural areas have proven to be helpful for managing migration, improving the livelihoods of migrants and their families, and reducing rural poverty. A final source to highlight is that of rural traders and agribusinesses. As agriculture becomes more integrated into market-driven value chains, this traditional source of funds will grow in scope and importance.

E. Access to local markets

65. The main thrust of programmes aimed at facilitating better access to local markets by small producers has traditionally been on bridging the information gap through the creation of market information services, as well as building roads from farms to markets and improving other market infrastructure, and on providing assistance to small producers in identifying potential markets. More recently, efforts have concentrated on enabling partnerships along the market chain, inter alia, by fostering formal and informal equitable contracts between producers and traders and processors and retailers, including by facilitating the development of small producers (farmers) associations in order to better take advantage of market opportunities.[33]

66. Recognizing the importance of access to markets in overcoming poverty in rural households, IFAD has increased its financial assistance to projects that encompass such a component. The proportion of projects with this component

[32] See http://www.fao.org/newsroom/en/news/2006/1000313/index.html.

[33] Shepherd, Andrew W., "Approaches to linking producers to markets", Agricultural Management, Marketing and Finance Occasional Paper 15. FAO, 2007.

increased from 18 per cent over the period from 1991 to 1995 to 38 per cent between 1999 and 2001. Some examples of projects with a market access component include, among others: El Salvador, to transform agricultural and non-agricultural rural activities into profitable rural businesses by providing specialized technical and business-related assistance and resources to approximately 33,000 people; and the Maldives, to assist small producers and processors in the agriculture and fisheries sector to help them improve the quality of their products and access new niche markets in which to sell them.

III. Continuing challenges

67. The overall progress in reducing rural poverty has been slow, but there are several successful experiences that show the way forward in terms of what can work and under what circumstances. While the main thrust of rural development efforts remains in the agriculture sector, the evidence suggests that reducing rural poverty through agricultural development alone would be difficult. The challenge is to foster development in rural areas that benefits entire communities, and not only those who are engaged in agricultural activities.

68. The lack of broad-based investments in the rural sector aimed at, inter alia, enhancing efficiency and productivity of agriculture, tapping the potential of the non-farm sector, improving the management of natural resources and enhancing the quality of rural infrastructure, are specific barriers to promoting growth and reducing poverty in rural areas. Further challenges to promoting economic growth in rural areas include strengthening partnerships and providing technical assistance on market-oriented farming and small- and medium-scale agro-enterprises development to promote competitive rural agro-industries. Promoting local craftsmanship and tourism in some cases also may benefit the rural economies.

69. Limited access to rural finance, improved agricultural inputs, modern energy services, local markets and market information, storage facilities, transportation, technology, education and other social services serve as major barriers to stimulate growth in rural economies. Ensuring that rural finance supports income-generating activities outside the agriculture sector, including tapping the informal financing sector, could contribute significantly to achieving sustainable rural development.

70. The need to appropriately design rural development programmes, and then to ensure their effective implementation and monitoring, can hardly be overemphasized. Often, the biggest limitation in evaluating progress in rural development is weak data. For example, the impact of non-agricultural activities on reducing rural poverty cannot be sufficiently studied owing to the lack of global, consistent and easily comparable data for all the regions. Also, inadequate capacities exist in national statistical offices and censuses to generate and obtain rural/urban disaggregated data on socio-economic and environmental aspect of rural economies.

71. Natural resources are a primary source of livelihood of people in developing countries, but their overexploitation in many countries is creating a devastating impact on the living conditions of the rural poor. Therefore, it is crucial to secure a balance between maximizing the productivity of natural resources, on the one hand, and ensuring their conservation on the other.

72. The poor face significant barriers in their fight against poverty, including lack of access to safe drinking water, basic sanitation, clean and affordable modern energy sources, and medical care. Certain vulnerable groups, such as women, suffer even more from lack of access to those basic services. Insufficient resource allocations in national and local budgets remain a serious constraint in expanding the provision of basic social services. Strengthening the capacities of local institutions is vital to enhancing the sustainability of existing rural development schemes.

73. While rural development is essential to achieving sustainable development, it cannot be realized without adequate community empowerment and participation. One key obstacle to community empowerment is the lack of education and literacy in rural communities. Public investment in rural education in developing countries has often been inadequate. In addition to increasing public spending on education and the participation of civil society organizations and other relevant stakeholders, it is important to bridge the education gaps in remote rural areas. Equally important is to address the various social and cultural constraints that inhibit the full participation of marginalized and disadvantaged groups in the development and implementation of rural development programmes.